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Omnova Solutions Inc. Robert F. Rywalski 175 Ghent Road Fairlawn, OH 44333-3300			BOYD, JENNIFER A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/993,745  
Filing Date: November 14, 2001  
Appellant(s): CHIP ET AL.

MAILED  
JUN 15 2006  
GROUP 1700

Joseph E. Waters  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed December 14, 2005 appealing from the Office action  
mailed July 13, 2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

4539254

O'CONNOR

9-1985

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 - 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

According to MPEP 2164.01(a), there are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is “undue.” These factors include, but are not limited to: the breadth of the claims; the nature of the invention; the state of the prior art; the level of one of ordinary skill; the level of predictability in the art; the amount of direction provided by the inventor; the existence of working examples; and the quantity of experimentation needed to make or use the invention based on the content of the disclosure. The Appellant’s independent claims are broad and only require a copolymer latex binder (for polyester fibers or a nonwoven or woven polyester mat) comprising 10 – 90% by weight styrene-butadiene and 90 – 10% by weight of urea-formaldehyde. The claims indicate that the urea-formaldehyde is prepared by adding a short stop agent to the reaction system. In paragraph 0026 of the Specification, the Appellant discusses the use of a short-stop agent. The Specification states that a “short stop agent of a type well known in the art” is added to the reaction system after “pre-determined amount of time”. Although many short stop agents are

known in the art, the pre-determined amount of time is not definitively defined by the prior art and, more importantly, not defined by Appellant's Specification. Appellant indicates that one suitable short-stopped urea-formaldehyde is sold under the designation of "2023-30" by Dynea Oy of Helsinki, Finland. The information regarding the use and the nature of the short-stopping agent in the manufacturing of Dynea Oy cannot be found by means of an internet search and is not discussed in any prior art. The Appellant has provided one Example in the Specification. The Example does not discuss the preparation of the short-stopped urea-formaldehyde. It appears that the urea-formaldehyde used in Appellant's Examples is "2023-30" by Dynea Oy. Based on the fact that the Appellant has provided no information of how 2023-30 is made and does not provide any information about the amount of short-stop agent used, the time that the short-stop agent is added to the system and has not provided any physical characteristics that would differentiate a normal urea-formaldehyde polymer from a short-stopped urea-formaldehyde (i.e. chain length limitations), it would be unclear to one of ordinary skill in the art how to make the short-stopped urea-formaldehyde and thus would require undue experimentation.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al. (US 4,539,254).

O'Connor is directed to a reinforcing composite for roofing membranes and process for making such composites (Title).

As to claims 1 and 6, O'Connor teaches a composite comprising at least one layer of fiberglass, at least one layer of polyester and at least one third layer which is fiberglass or polyester (column 1, lines 59 – 64). It should be noted that that the layer of polyester can be equated to Appellant's "single layer of a nonwoven or woven polyester mat". O'Connor teaches that the layers may be bonded together by a thermoplastic adhesive under pressure to form a thin composite (column 2, lines 10 – 14). O'Connor teaches that the thermoplastic adhesive used to bind the laminated composite together can be a water-based adhesive capable of cross-linking (implying the need of a cross-linking material) to give a thermoset structure, may also be made by adding thermosetting resins to a thermoplastic resin (for example, by adding a urea-formaldehyde resin to a styrene-butadiene latex) (column 3, lines 55 – 68). As to the limitation that the urea-formaldehyde resin is "prepared by adding a short-stop agent to the urea-formaldehyde resin reaction system", it should be noted that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Appellant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983). It should be noted that the Appellant has not provided any chain length limitations to the polymer (i.e. a normal urea-formaldehyde polymer

compared to urea-formaldehyde polymer made by adding a shortstop agent), the amount of shortstop agent used in the system and the time at which the short stop agent is put into the urea-formaldehyde system. It is the position of the Examiner that these factors would provide a comparative basis for the claimed invention and the prior art. The Examiner submits that a minor amount of shortstop agent could be added towards the polymerization process which would result in a minimal impact on the structural and physical characteristics of the polymer.

As to claims 1 – 10, O'Connor discloses the claimed invention except for that the binder comprises at least 10 – 90 wt% styrene-butadiene and a corresponding amount of 90 – 10 wt% of urea-formaldehyde resin as required by claims 1 and 6, about 70 wt% styrene-butadiene and about 30 wt% of urea-formaldehyde resin as required by claims 2 and 7, at least 10 – 90 wt% styrene and 90 – 10 wt% butadiene as required by claims 3 and 8, about 30 - 70 wt% styrene and about 70 – 30 wt% of styrene as required by claims 4 and 9 and about 40 wt% styrene and about 60 wt% of styrene as required by claims 5 and 10. It should be noted that the amount of styrene-butadiene and urea-formaldehyde resin present in the binder and the proportion of butadiene to styrene are result effective variables. For example, as the styrene content increases, the binder becomes stiffer and is more impact resistant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a binder with 10 – 90 wt% styrene-butadiene and a corresponding amount of 90 – 10 wt% of urea-formaldehyde resin as required by claims 1 and 6, about 70 wt% styrene-butadiene and about 30 wt% of urea-formaldehyde resin as required by claims 2 and 7, at least 10 – 90 wt% styrene and 90 – 10 wt% butadiene as required by claims 3 and 8, about 30 - 70 wt% styrene and about 70 – 30 wt% of styrene as required by

claims 4 and 9 and about 40 wt% styrene and about 60 wt% of styrene as required by claims 5 and 10 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the ratio of styrene-butadiene and urea-formaldehyde and the ratio of styrene to butadiene to create a binder with proper tear strength and impact strength.

#### **(10) Response to Argument**

Appellant argues that claims 1 – 10 satisfy 35 U.S.C. 112, first paragraph irrespective of the fact that the amount of short stop agent added to the UF resin is not disclosed. According to MPEP 2164.01(a), there are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is “undue.” These factors include, but are not limited to: the breadth of the claims; the nature of the invention; the state of the prior art; the level of one of ordinary skill; the level of predictability in the art; the amount of direction provided by the inventor; the existence of working examples; and the quantity of experimentation needed to make or use the invention based on the content of the disclosure. The Appellant’s independent claims are broad and only require a copolymer latex binder (for polyester fibers or a nonwoven or woven polyester mat) comprising 10 – 90% by weight styrene-butadiene and 90 – 10% by weight of urea-formaldehyde. The claims indicate that the urea-formaldehyde is prepared by adding a short stop agent to the reaction system. In paragraph 0026 of the Specification, the Appellant discusses the use of a short-stop agent. The Specification

states that a “short stop agent of a type well known in the art” is added to the reaction system after “pre-determined amount of time”. Although many short stop agents are known in the art, the pre-determined amount of time is not definitively defined by the prior art and, more importantly, not defined by Appellant’s Specification. Appellant indicates that one suitable short-stopped urea-formaldehyde is sold under the designation of “2023-30” by Dynea Oy of Helsinki, Finland. The information regarding the use and the nature of the short-stopping agent in the manufacturing of Dynea Oy cannot be found by means of an internet search and is not discussed in any prior art. The Appellant has provided one Example in the Specification. The Example does not discuss the preparation of the short-stopped urea-formaldehyde. It appears that the urea-formaldehyde used in Appellant’s Examples is “2023-30” by Dynea Oy. Based on the fact that the Appellant has provided no information of how 2023-30 is made and does not provide any information about the amount of short-stop agent used, the time that the short-stop agent is added to the system and has not provided any physical characteristics that would differentiate a normal urea-formaldehyde polymer from a short-stopped urea-formaldehyde (i.e. chain length limitations), it would be unclear to one of ordinary skill in the art how to make the short-stopped urea-formaldehyde and thus would require undue experimentation. The rejection is maintained.

Appellant argues that the Examiner has not met the burden of presenting a *prima facie* case of equivalence between the resin of O’Connor and the short-stopped UF resin of the present Application. As stated in the applied rejection, O’Connor teaches a composite comprising at least one layer of fiberglass, at least one layer of polyester and at least one third layer which is fiberglass or polyester (column 1, lines 59 – 64). It should be noted that that the layer of

polyester can be equated to Appellant's "single layer of a nonwoven or woven polyester mat". O'Connor teaches that the layers may be bonded together by a thermoplastic adhesive under pressure to form a thin composite (column 2, lines 10 – 14). O'Connor teaches that the thermoplastic adhesive used to bind the laminated composite together can be a water-based adhesive capable of cross-linking (implying the need of a cross-linking material) to give a thermoset structure, may also be made by adding thermosetting resins to a thermoplastic resin (for example, by adding a urea-formaldehyde resin to a styrene-butadiene latex) (column 3, lines 55 – 68). Due to the fact that the Appellant has not provided a required range of short-stop added to the system, the Examiner can assume that even a minor amount of short-stop agent would meet Appellant's requirement. The Examiner submits that a minor amount of shortstop agent could be added towards the polymerization process which would result in a minimal impact on the structural and physical characteristics of the polymer. Also, it should be noted that the short-stop agent is not present in the final product but only present in the system during manufacturing of the resin. Based on the limited information that is provided, the Examiner has shown reasonable rationale to show that the claimed product appears to be the same or similar to that of the prior art. The burden remains shifted to the Appellant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). It should be noted that the Patent Office bears a lesser burden of proof in making out a case of *prima facie* obviousness for product-by-process claims because of their peculiar nature than when a product is claimed in the conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Furthermore, it should be noted that "The lack of physical description in a product-by-process

claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

The rejection is maintained.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
Jennifer Boyd

June 1, 2006

  
**Ula C. Ruddock**  
Primary Examiner  
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Conferees:

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